

Iron Deficiency

What Is Iron Deficiency?

Iron is an essential nutrient. It is the part of red blood cells that carries oxygen to all cells of the body. If you are low in iron (iron deficient), you may find that your energy levels drop and you may lose your breath after even short bursts of activity.

What Causes Iron Deficiency?

Iron deficiency is a common concern after weight-loss surgery, especially after gastric bypass or duodenal switch. This is because you have less stomach acid after surgery, and stomach acid helps with iron absorption. Also, the iron from foods and supplements is best absorbed in the upper part of your intestine, and that part no longer comes in contact with the iron, so less iron is absorbed. In women, heavy menstrual blood losses can increase iron needs. Finally, after surgery, you may be eating fewer high-iron foods, such as red meat. In sum, the possible causes of iron deficiency include:

- Poor absorption of iron
- Blood loss
- Eating less

How Do I Know Whether I Have Iron Deficiency?

Early stages of iron deficiency may not affect how you feel, but certain laboratory tests can detect decreased iron in your body. If your iron levels are getting low, you will need to take action to prevent a more severe iron deficiency (anemia). If your deficiency gets worse, it may affect the way you feel and may require aggressive treatment with iron supplements (as recommended by your weight-loss surgery team).

Some signs and symptoms of iron-deficiency anemia include:

- Feeling tired easily
- Getting out of breath easily
- Decreased work performance
- Craving ice to chew
- Decreased immune function, which makes you more susceptible to infection

Anemia should be treated by your health care team. They will assess the causes of your anemia, recommend your treatment (which may include supplements), and check how well the treatment works.

Ways to Increase Iron Absorption

Your body absorbs iron from meat, poultry, and fish best. Other foods that contain iron include beans, seeds, fortified grains, and some vegetables. The amount of iron your body can absorb from these foods varies and can be affected by the vitamin C content of a meal as well as some factors that block absorption. To ensure that you absorb as much iron as possible, follow these recommendations:

- Eat enough meat, poultry, and fish. These foods have *heme* iron, which is more easily absorbed than the *nonheme* iron found in plant foods.
- Eat foods that contain vitamin C when you eat foods with iron.
- To get the most iron from plant foods that contain iron, eat them at the same time that you eat animal protein, such as meat, poultry, or fish.
- Cook with a cast iron skillet.
- To get the most iron from iron supplements, take them at the same time that you eat meat, poultry, or fish.
- Avoid taking iron supplements and eating high-iron foods with:
 - Antacids.
 - Calcium: Do not take calcium supplements within two hours of your iron source (iron sources include multivitamins with iron, iron supplements, and high-iron foods).
 - Foods that block iron absorption, such as tea; coffee; whole grains; nuts; milk or dairy products; prunes; and red grapes. Soy (including soy-based protein bars or drinks) and cooked dried beans also contain compounds that interfere with iron absorption, but this may be minimized by eating them with a good source of vitamin C.

How Much Iron Do I Need After Weight-Loss Surgery?

While it is important to get enough iron to ensure good health, too much iron is not good for you. **Take iron supplements only as recommended by your health care provider.** The following chart shows some general recommendations. Talk with your health care team about what's right for you.

What to Do When Iron Supplements Are Recommended

If your health care team recommends that you take iron supplements, it is important to follow the recommendations carefully, including type of iron, dose, and number of doses.

- Forms of iron that are best absorbed include ferrous fumarate, ferrous sulfate, and ferrous gluconate.
- To absorb the most iron from prescribed supplements, it is usually best to take them in two or three equal doses at intervals spread throughout the day.
- Avoid enteric-coated iron or slow-release iron.

Side Effects of Iron Supplements

High doses of iron supplements may cause nausea, vomiting, constipation, diarrhea, dark-colored stools, or stomach discomfort in some people. If you experience these side effects, try the following:

- Start with half the dose and gradually increase the amount you take.
- Take the supplement in divided doses.
- Take the supplement with food.

Dietary Sources of Iron

Food	Iron (mg)	Protein (g)	Calories
Clams, canned, drained, 3 ounces	24	21	125
Cooked oysters, 3 ounces	10	21	115
Organ meats (liver, giblets), cooked, 3 ounces	5–10	21	130–230
Lean red meat (beef, lamb, veal), cooked, 3 ounces	2–3	21	165
Sardines, canned in oil, drained, 3 ounces	2–3	21	177
Shrimp, canned, 3 ounces	2–3	21	102
Chicken or turkey, roasted, 3 ounces	1	21	171
Fish, cooked, 3 ounces	1	21	75–100

Less well absorbed (eat with vitamin C foods)			
Fortified dry cereals* (various), about 1 ounce	2–20	0	60–130
Tofu, ½ cup*	4–7	10	95
Dried beans (e.g., pinto, navy, black, garbanzo,	2–4	14	150
Tomato paste,* ¼ cup	2	0	55

Source: USDA National Nutrient Database for Standard Reference, release 22. <http://www.ars.usda.gov/ba/bhnrc/ndl>.

Good Sources of Vitamin C

As noted, eating foods that contain vitamin C along with foods that contain nonheme iron will allow your body to absorb more of the iron. Foods with vitamin C include:

- Bell peppers
- Brussels sprouts
- Broccoli
- Cauliflower
- Cabbage
- Cantaloupe
- Oranges, tangerines, or grapefruit (may be hard to digest)
- Kiwi
- Mango
- Tomato
- Vegetable juice